Very Shallow Water (VSW)
Mine Counter-Measure (MCM)
Unmanned Underwater Vehicle (UUV)
Search-Classify-Map (S-C-M)
INDUSTRY DAY
INTRODUCTION

Rob Simmons

PMS-EOD-3

PURPOSE

- Communicate to industry, the government's plans for acquisition of a S-C-M UUV system for VSW MCM missions
- Provide forum for Industry discussion and feedback on draft solicitation package elements

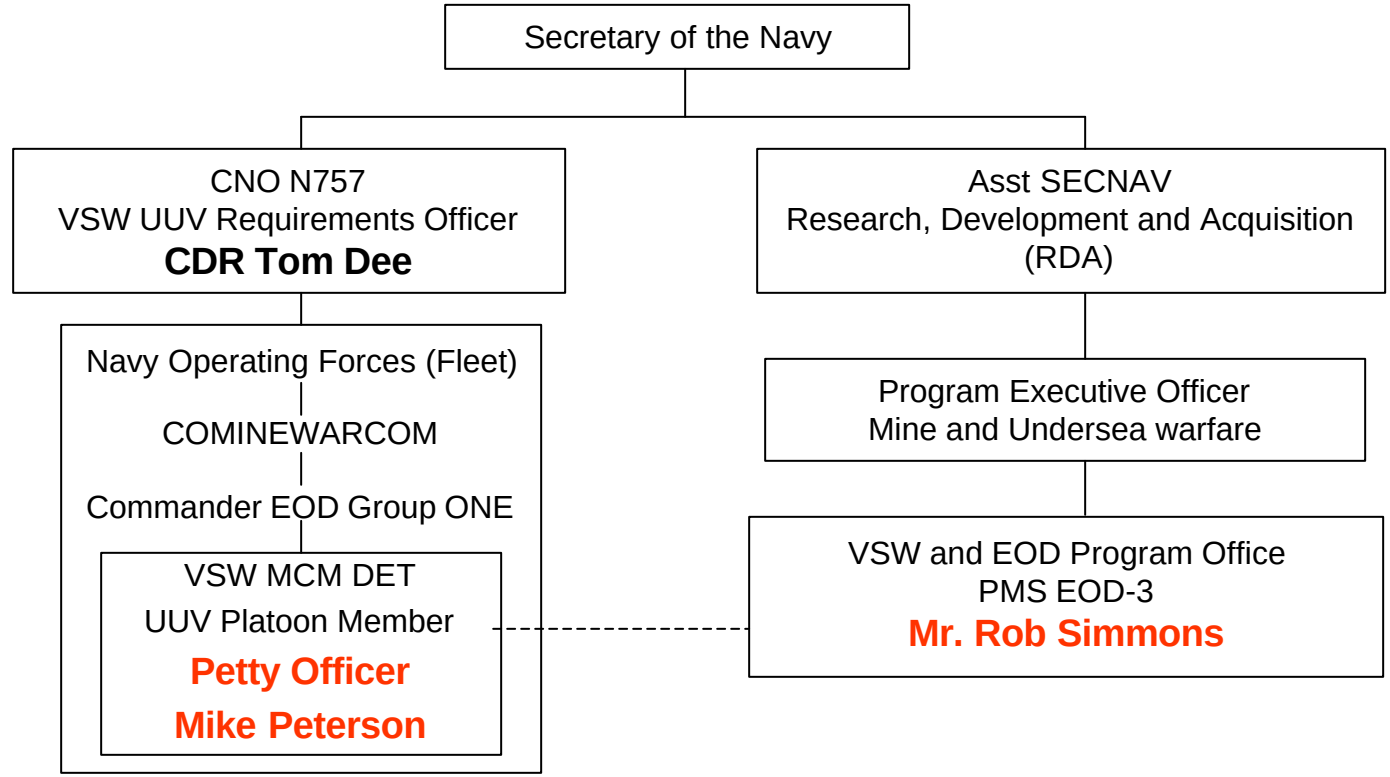
DISCLAIMER

The remarks today of Government officials involved in the the VSW MCM UUV System for Search-Classification-Mapping (S-C-M) should not be considered a guarantee of the Government's course of action in proceeding with the program. The information we share today reflects current Government intentions of how the S-C-M system procurement may be carried out, and is subject to change based on a variety of circumstances. The solicitation itself is the only document that should be relied upon in determining the Government's requirements.

AGENDA
INDUSTRY AWARENESS / RISK MITIGATION WORKSHOP
17 Oct 2001

TIME	EVENT	PRESENTER
0830	**Check-in**	All
0900	**Introductory Remarks**	PMS-EOD
0920	**Mission Need and System Requirements**	OP N757
0940	**VSW MCM Detachment Overview & Mission**	VSW MCM DET
1010	Break	
1030	**VSW MCM UUV Program** • Acquisition Strategy • Production Contract Approach • Program Timeline	PMS-EOD
1130	Lunch	All
1230	**RFP Document Discussions** • Preliminary Draft Performance Specification (Including Environmental Tests) • Preliminary Draft SOW (Including Technical / Logistic Documentation Package) • Preliminary Draft Instructions and Evaluation Criteria • Preliminary Draft Documentation Package	Gov't Panel
1530	**Open Discussion / Q&A Period**	Gov't Panel
1600	**Industry Input Wrap-up**	PMS-EOD
1630	**Adjourn**	

GOVERNMENT PANEL ORGANIZATIONAL STRUCTURE



Other Panel Members

NSWC DD Coastal System Station

Mr. John Dudinsky

NAVEODTECHDIV

Mr. Andy Pedersen

Red font indicates Panel Members for this afternoon

Ground Rules

- No Recording
- Questions from the floor are encouraged
  - Please hold questions on the draft documents until the discussion/panel this afternoon.
  - Questions on briefs can be asked at the time the brief is being presented.
  - Question Cards will be available
  - Some questions may not be answered today
- All questions, answers and information briefs will be posted on the web site within 30 days (http://www.ih.navy.mil/contracts)

Very Shallow Water
Mine Countermeasures
Unmanned Underwater Vehicle Program

VSW MCM UUV Program Overview

Presented to Industry

October 17, 2001

Rob Simmons

PMS-EOD-3

THE CURRENT TRANSITION PLAN

19 97
Detachment Established

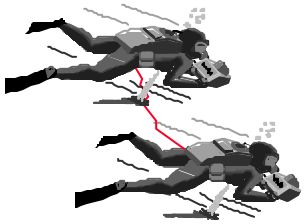
2000
Detachment Initial Operational Capability

2001
Very Shallow Water Unmanned Underwater Vehicle Program Begins

2005
1st Generation Search-Classify-Map to Very Shallow Water Detachment

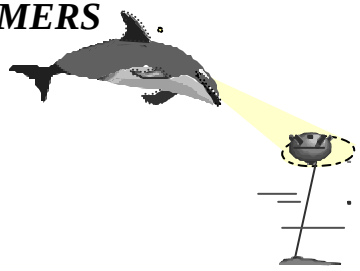
2006
1st Generation Reacquire-Identify-Neutralize to Very Shallow Water/ Explosive Ordnance Disposal

CRAWL/HOVER SYSTEMS



Dependent solely on Divers/ Marine Mammals

SWIMMERS



Transition to Unmanned Underwater Vehicles

Office of Naval Research Very Shallow Water/Surf Zone Organic Mine Countermeasures-Future Naval Capabilities Investment (1998-2007)
Autonomous Operations -Future Naval Capabilities Investment (2002-09)

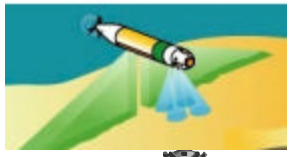
Improve Diver/ Marine Mammals Capability

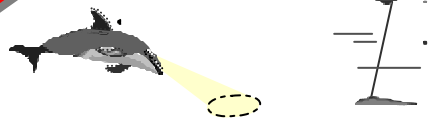
1ST UUV Step

CRAWL/HOVER SYSTEMS

Unmanned Underwater Vehicles for sub-tasks to minimize Divers/Marine Mammals

SWIMMERS

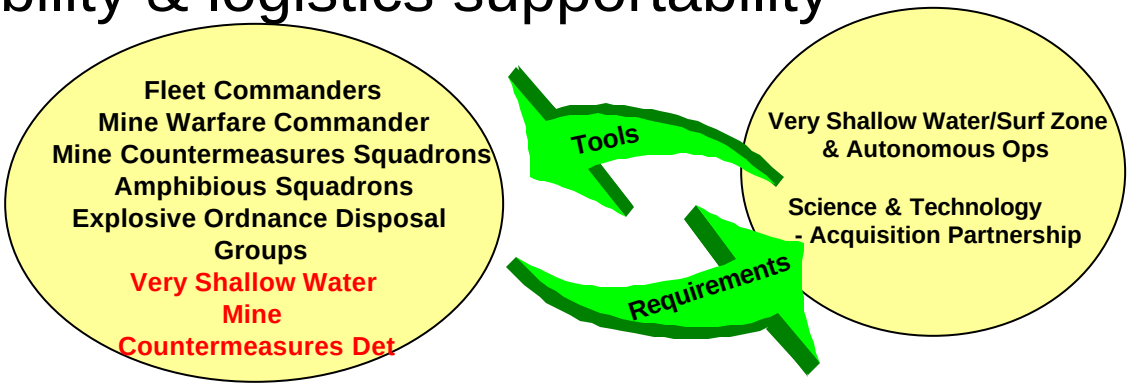




1st Generation VSW MCM Unmanned Underwater Vehicle Systems:

The "User Operational Evaluation Systems" Concept

- "Fly-then-Buy" Concept
- User Operational Evaluation Systems were procured and provided to the Fleet to aid in:
  - » Early engagement of Fleet in acquisition
  - » Tactics evaluation and feedback on Fleet employment concepts
  - » Requirements refinement
  - » Affordability,suitability & logistics supportability concerns



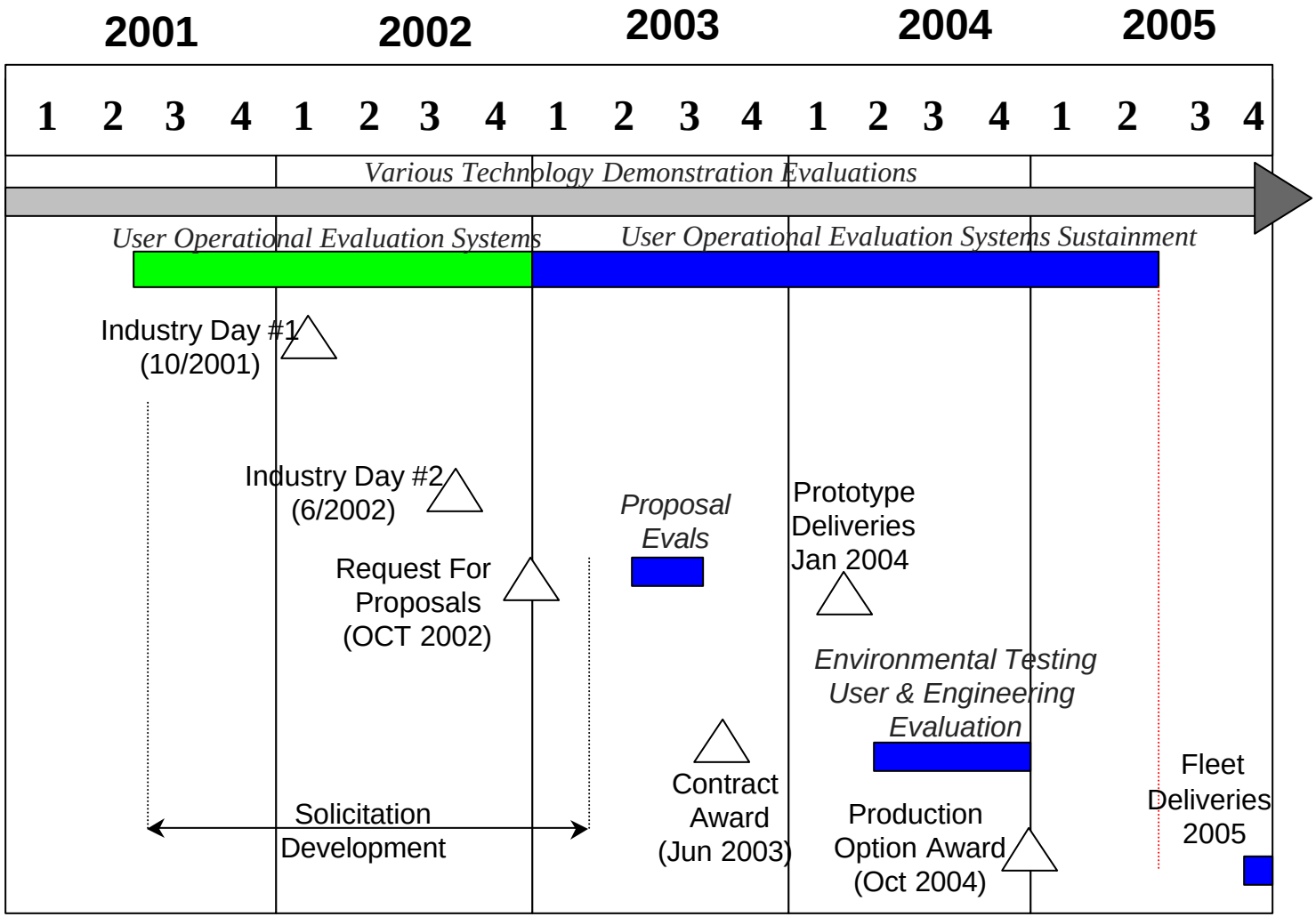
S-C-M UUV Performance

- System Performance Parameters
  - » System Reliability
  - » Low False Contact Density
  - » Probability of classification (P_C) without degraded Probability of detection (P_D)
  - » Navigation accuracy
  - » Performance will be evaluated in diverse MCM environments (e.g., bottom type, clutter,sea state)
  - » CRRC/RHIB-deployable (small inflatable boats)
  - » Small team operable
  - » Ability to withstand operational environmental conditions (Temp, shock, vibration, etc)

S-C-M UUV Performance

- Supportability Parameters
  - » Maintainability – minimize fleet maintenance burden
  - » Supporting Documentation – Fleet O&M manuals, training material key selection criteria
  - » Human Factors – ease of use important to user (sailors vice scientists)

1st Generation Search-Classify-Map System Competitive Procurement Plans/Progress



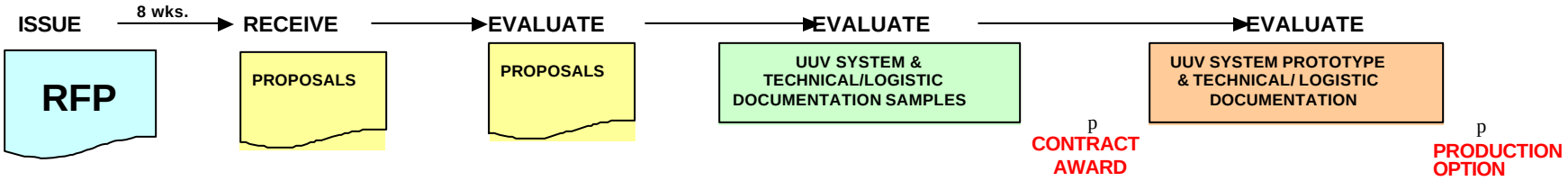
S-C-M UUV Post Production Support

- Direct Vendor Support – Supply support for fielded systems
- Depot maintenance – Plan is be vendor provided.
  - » Depending on Original Equipment Manufacturer (OEM) capability (or lack thereof) may be out-sourced to other vendor(s)

S-C-M Acquisition Strategy Enabling Events

- UOES Phase execution
  - » Progress and Assessment reports (Jun 2001-Sep 2002)
  - » Mid-Point Assessment (Feb 2002)
- Competitive Procurement
  - » Industry Day events (Oct 17, 2001 & Summer 2002)
  - » RFP Refinement and Issuance (Oct 2002)
  - » Prototype Requirements Compliance Testing (RCT - FY2004):
    - – Fleet Evaluations
    - – Engineering Evaluations
    - – Environmental Evaluations

S-C-M Contract Process



TWO PHASE SELECTION PROCESS:

Phase I:
Evaluation of paper proposal.

Phase II:
Evaluation of UUV System Sample Hardware and Technical/Logistic Documentation.

Includes description/ explanation of:

- Hardware
- Technical/Logistic Documentation
- Cost Proposal
- Etc.

PHASE I: (7 wks)

Desktop evaluation of proposal.

Vendors are ranked & t he highly qualified are selected for Phase II.

PHASE II: (9 wks)

Samples of the UUV System and the Technical/Logistic Documentation are to be provided for examination during an evaluation meeting to be held at the vendors' plant.

Cost Proposals are analyzed and evaluated.

N OTE:
If either or both of the samples do not meet the contract requirements, vender is to provide the specific steps planned to meet the contract requirements within the specified time.

Vendors are ranked & one or more is/are awarded a UUV System Prototype contract with a production option.

CONTRACT – PROTOTYPE PHASE (23 wks)

Engineering Evaluation:
Those Parameters in the Performance Specification that are not evaluated during Fleet Evaluation or Environmental Testing are evaluated on the bench top in addition to in -water testing of full mission profiles equal in scope to the Fleet Evaluation.

Fleet Evaluation:
UUV System Prototype is operated in the VSW MCM environment during full mission profiles.

Environmental Testing:
(Temperature, Shock & Vibration)
UUV System Prototype is exposed to environmental conditions that it is expected to encounter during operational missions. Parameters are in accordance with the Performance Specification in the contract.

Technical/Logistic Documentation:
The Training Materials and O&M Manual are evaluated as part of the Fleet Evaluation. All of the documentation is reviewed and evaluated against the contract requirements.

NOTE under RFP Phase II applies to this contract phase also.

The vendor(s) are ranked and the one with the highest overall ranking, including cost, is awarded the Production Option.

SUMMARY

- Inventory Objective: 6-12 systems
  (notionally: 2-3 vehicles per system)
- Established RFP date: October 2002
- Duration of Contract: 10 years
- **Industry involvement needed in development of documentation**
- Comments requested within 45 days or anytime up to 60 days prior to RFP release

Search-Classify-Map Unmanned Underwater Vehicle Requirements Overview

17 October 2001

AO1 Mike Peterson

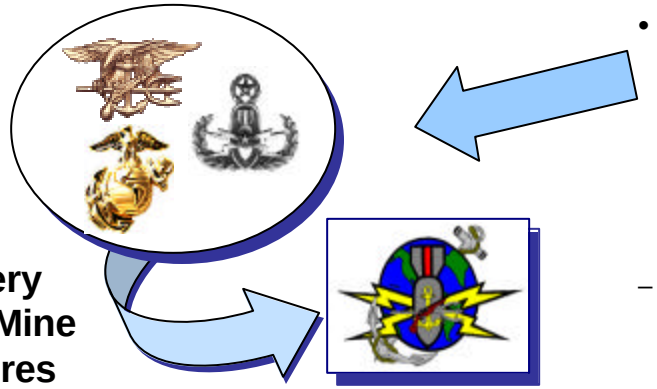
VSW MCM DET

Leading Petty Officer, UUV Platoon

THE ROAD TO FIELDING SMALL UNMANNED UNDERWATER VEHICLES:

The Very Shallow Water Mine Countermeasures Initiative (1996)

- Very Shallow Water Mine Countermeasures Detachment established by Chief of Naval Operations in 1998:
  - Dedicated Contingency Deployment Force
  - "War fighting Laboratory"



Addresses Very Shallow Water Mine Countermeasures Mission Area (10 to 40 feet)

- Very Shallow Water Mine Countermeasures Detachment Charter
  - Combines 3 Communities (Naval Special Warfare/Marine Reconnaissance/ Explosive Ordnance Disposal)
  - Very Shallow Water Mine Countermeasures Detachment consists of <u>3 Platoons</u>
    - Diver Platoon
    - MMS Platoon
    - **Unmanned System Platoon**

VSW MCM PROGRAM

PROGRAM DESCRIPTION

- VSW MCM DET WITH **3 PLATOONS**
  - DIVER PLATOON
  - MMS PLATOON
  - **UNMANNED SYSTEM PLATOON**

NEAR TERM - 98-99	• **VSW WARFIGHTING LABORATORY**. • BEGIN DIVER/MMS ACQUISITION PROGRAMS.
MID TERM - 00-05	• TRANSITION VSW MCM TEST DET TO OPERATIONAL DET. • FIELD FOR DIVER/MMS PLATOONS BY FY02. • **DEMONSTRATE UNMANNED PROTOYPES AT VSW DET.**
FAR TERM - 06 & BEYOND	• **DEVELOP/FIELD UNMANNED CAPABILITY.** • **TRANSITION DIVERS/MMS OUT OF VSW TASK, WHERE FEASIBLE.** • **TRANSITION UUV CAPABILITIES SEAWARD.**

VSW MCM Required Operational Capabilities & Projected Operational Environment Unmanned System Platoon

- AMW 18.1 Conduct Amphibious Objective Area (AOA) Surveillance of littoral waters from seaward “looking-in” to the coast line.
  - Mine/obstacle and hydro-reconnaissance tasks
  - Mine/obstacle location and classification/identification tasks
- MIW 8 Conduct Precise Navigation
  - 8.1 Maintain a precise navigation system
  - 8.2 Navigate precisely in Mine Countermeasures environment
  - 8.5 Safely navigate minefields

VSW Environment

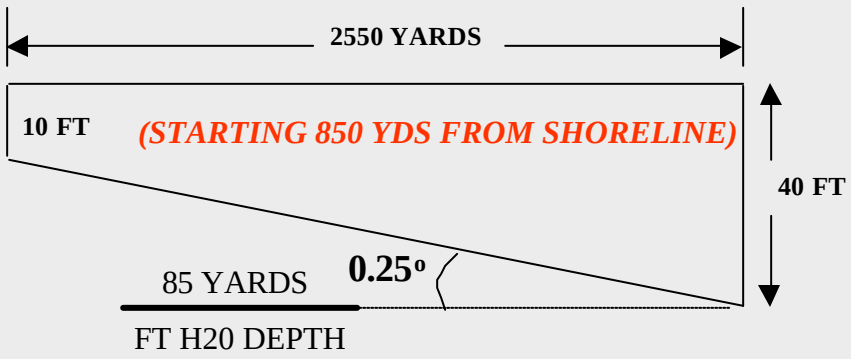
- Anechoic Materials
- Self-burying/Scouring
- Odd shapes
- Influence Firing Devices

Complex & Diverse Mine Threat

On a bad day:

Complex Environment

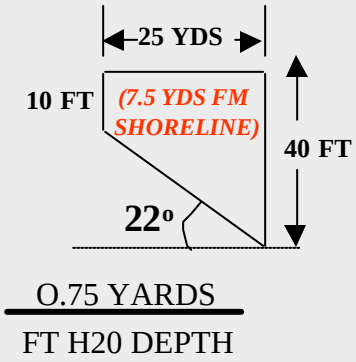
THEORETICAL VSW LANE GEOMETRIES
(LENGTH μ GRADIENT)



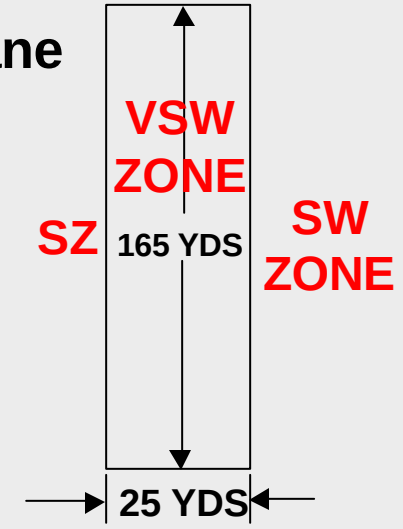
Typical Single Lane

Side View

Top View

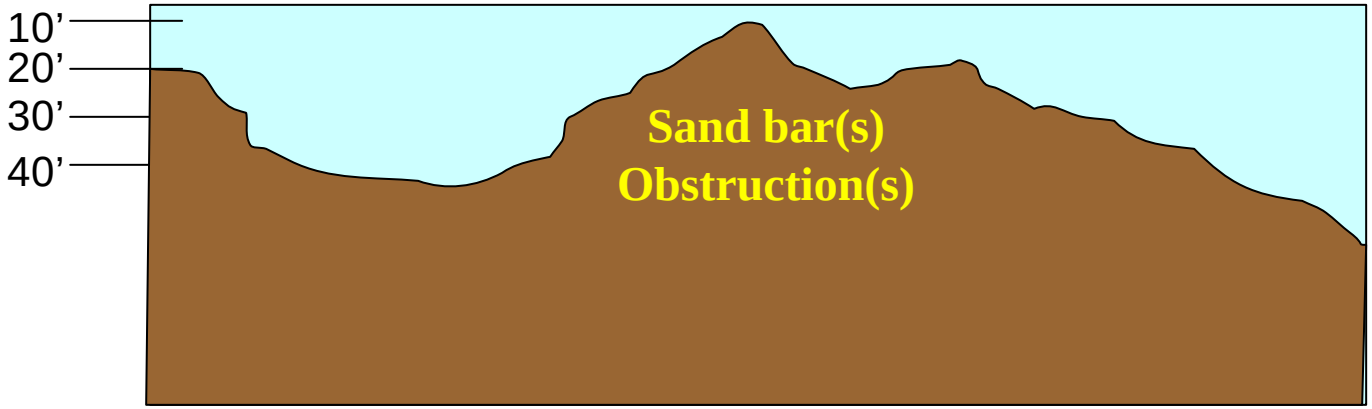


Typical Single Lane



REALITY OF VSW ZONE GEOMETRIES

- **Irregular gradients**



- **Quantity of targets to ID = MINES + NOMBOs**
  - MINES (Quantity of expected threat mines in objective area)
  - NOMBOS = Non-Mine **MINELIKE** Bottom Objects classified from prior MCM ops.

Performance User's Perspective Concerns

- P_C and Navigation/Mapping Accuracy
- Mobility (Ingress & Egress and Objective Area Ops)
- Endurance (how many contacts/how long?)
- RHIB/CRRC employable
- Compatibility with VSW MCM Diver Platoon and MMS Platoon
- 2-person portable
- Ease of Use:
  - pre-mission planning
  - post-mission analyses
- Precision Navigation (re-acquisition of defeated objects)

User Prototype Evaluation Progress

- Broad Agency Advertisement (BAA) issued in early FY00.
- Swim-off of prototypes - selected prototype for VSW Det evaluations
- 7 Personnel assigned to UUV platoon
- 18 month user evaluation began in June 2001
  - Two Woods Hole Oceanographic Institute REMUS vehicles delivered June 2001
  - 4 months of evaluation complete
  - Over 60 missions run

Purpose of User Evaluations

- **Refine requirements**
- **Develop tactics and concepts of employment**
- **Provide user feedback to Acquisition Managers**

Wrap-up

Rob Simmons
PMS-EOD-3

Summary/Wrap-Up

- Questions and Answers (if known) to be posted on website within 30 days
- If we cannot answer a question - we will say so
- Comments/input on draft documents requested within 45 days but not later than 60 days prior to release of RFP
  - (Direct input to the POC identified on the CBD Notice).
- Next Industry Day: ~ June 2002
- A CBD notice will be issued announcing Industry Day #2